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THE PURPOSE OF EDUCATION

An Examination of the Education Problem in the Light of Recent Psychological Research

BY

ST. GEORGE LANE FOX PITT

NEW EDITION

with Preface by

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THE JOURNAL OF PHILOSOPHY
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STRUCTURAL LEVELS IN THE SCIENTIST'S WORLD

IN dealing with the facts of nature two types of explanation are exhibited by science. In the first an event is explained by referring it to a general law of which it appears as a particular instance. Such laws are gleaned from a classification and comparison of instances, and represent generalizations that have been tested by their power to enable us to make verifiable predictions. The second type proceeds by showing us that the situation in question is a consequence of the lawful behavior of more elementary facts out of which it is constituted. That is, there is presupposed a group of general laws characterizing the behavior of certain entities which can become organized into groups constituting the facts of which an explanation is sought. An example of the first type of law is the formula of gravitation, that all matter attracts all other matter with a force proportional to the product of the masses divided by the square of the distances, for this merely serves as a generalization under which falling bodies and the motion of the planets can be subsumed as particular instances. The second type can be illustrated by the explanation of the behavior of a chemical compound through the nature and valencies of the atoms of which it is composed, or of the behavior of a mob through the natural tendencies of the individuals in it, when these tendencies are heightened or suppressed by the reactions of the individuals on each other as well as on the situation toward which the mob activities are directed.

The second type of explanation is dependent upon an analysis of the world into classes of entities which for our present purpose can be designated as levels. Thus in the present state of physical science we can distinguish four principal levels: the electronic, the atomic, the molecular, and a level consisting of aggregates of molecules, whether solid, liquid, or gaseous. Ether is not here included as a level, for at present there seems to be no fact of observation or theory that demands the hypothesis of the disintegration or disappearance of electrons, though Planck's quanta theory, with its suggestion of energy atoms, may lead us to a granular conception of the

ether and, with it, to a need of relating the electron to these granules. Until further developments have taken place along this line, while there can be little doubt that the ether concept represents something physically real, ether remains an hypothetical connecting medium by which certain types of motion are communicated from one body to another. Its inclusion or exclusion, as a level, however, would not affect the general results at which our analysis arrives.

The electronic level of entities can obviously only be understood in terms of general laws descriptive of the behavior of electrons at present. On the atomic level, however, further results are obtainable. Since Dalton, in 1801, hit upon that transformation of the atomic theory that gave it genuinely quantitative character, the study of atomic weights and their arrangement by Newlands (1863) under the "law of octaves," and the correlation of properties as periodic functions of atomic weights by Mendeleef (1869) have opened up previously unexpected fields. If properties are correlated with weight, the suggestion at least is strong that they are consequences of structure, and the evidences obtained from Crookes's fractionations of yttria (1837), the Zeeman effect (1898), Lockyer's analysis of star spectra (1900), J. J. Thompson's studies on the conductivity of gases (1904), and Soddy's interpretation of radium (1909) give almost overwhelming evidence that such complexity is actually a fact. If electrons are here the constitutive element, it must be the ideal of the chemist to account for the properties of atoms as consequences of an organization or integration of the electrons by which they are constituted. Even prior to the knowledge of electrons, Crookes (1886) proposed his pendulum oscillations hypothesis concerning the mode of genesis of the atoms from an interior element named *protyle*, and since the recent growth of knowledge concerning the relation of electricity and matter, speculative explanations of valency and other atomic properties have begun to appear.[1] In particular, J. J. Thompson (1904) has assumed atoms composed of varying numbers of corpuscles and in forms conditioned by the demands of stability for various numbers, by means of which he suggests explanations for the recurrence of similar properties exhibited by atoms of increasing weight, the differences in their electro-chemical nature, in their valencies, and the tendency to chemical combination between the different kinds.

While the above researches must still be held to be of a somewhat speculative nature, they are nevertheless indicative of a tendency of science. Between higher levels examples could be multiplied: for example, the creation of stereo-chemistry to supplement, in cases of isomerism, the explanation of certain molecules in terms of their

[1] Cf. Freund, "Theory of Chemical Composition," Ch. XIX.

constituent atoms, and studies of the behavior of the surface molecules of liquids to explain surface tensions, capillarity, etc. Indeed, the modern chemist is already working on the basis of a pretty clearly defined concept of levels and his ideal may also be seen in physiology and in all modern biological study of the process of growth, heredity, transmission, and the like.

Each level of the physical world, above the electronic, is then to be looked upon as containing entities constituted by an integration of entities on a lower level in accordance with the lawful forms of their behavior. But it is to be noted that the consequent behavior of these aggregates is not the behavior of the elements of which they are composed: electrons do not have valency, atoms have not molecular properties, and, for the molecule, surface tension or the solid, liquid, and gaseous states are meaningless. Even when a property seems to be present on several levels, as a mutual attraction between entities, its description is markedly different in the different cases, as was the case in the now outlived "distance coefficient" physics.[2]

If the rise from the simplest to the most complex level is looked upon as a process taking place in time, it would appear that the world is a place where novelties, at least in the sense of facts requiring new and previously meaningless types of description, are constantly arising. To conclude that this is the sole course of events, however, is somewhat hasty, for, if we are to accept Lockyer's conclusions from the analysis of stellar spectra, it would appear that there are stars growing hotter as well as stars growing cooler, that is, stars in which the atomic elements are in the process of disintegration as well as stars in which they are being formed. In other words, it would appear that with sufficient cooling so many heavy atoms are formed that radioactive processes set in which reverse the course of development and lead to general disintegration, which must, in some manner, be reversed when the free electrons are again obtained.[3] Thus a cyclic type of process would be indicated and, as this process is characteristic of each star, the change in the whole universe can perhaps best be described as maintaining a statistical identity. Carnot's principle, however, if valid without restriction, introduces further complications the discussion of which now would lead us too far afield.[4] We are here close to the borderland of scientific speculation and must wait further knowledge to solve the problem of cosmology.

The point that concerns the philosopher primarily is the interpretation of the nature and extent of the novelty that appears at each

[2] Poincaré, "The Foundations of Science," page 298.

[3] Lockyer, "Inorganic Evolution."

[4] Cf. Poincaré, *loc. cit.*, pages 303–5.

change from a lower level to a higher in specific cosmic integrations. The final test of a scientific principle is the verifying predictions that can be made by it and, while the present state of our knowledge leaves far too many gaps, there seems to be a body of ever-increasing evidence that, given knowledge of the laws of behavior of the entities on any one level, it is possible to predict the character and behavior of entities on the next higher level that are constituted by an integration of the elements of the lower level.

If our evidence was merely in the physical sciences, however, it would not be so cogent, for it could be argued that, inasmuch as a knowledge of the lower levels is obtained from analysis of the higher, there must, *a priori*, be introduced among the properties of entities on a lower level all of those characteristics which would be necessary to account for properties found in the higher. But, fortunately, the principle of levels is not limited merely to the physical world. The multi-molecule[5] of the physiological chemist, the protobion of the biologist, together with his cell, organism, and multi-organism all represent similar structure, and these things are not, for the most part, entities, knowledge of which is derived from the study of the wholes which they constitute, but entities, the knowledge of which is attained from direct contactual study.

If it were to be assumed—a thing which seems contrary to probability as our knowledge now stands[6]—that the physical universe once consisted solely of free electrons, it is theoretically possible that the evolution of matter, plants, and animals might have been predicted, but it would be a mistake, of a type to which philosophers are only too prone, to assume that therefore the laws of electronic action are the supreme laws of the universe in terms of which all its happenings should eventually be construed, for such prediction would have to take the form of predicting first the integration of electrons into atoms and the consequent laws of atomic action, then the integration of atoms into molecules and their consequent properties, etc., and at every step the new types of law appearing would be as genuinely and as profoundly of cosmic significance as the fundamental laws from which a start was made. Atoms do possess affinity, masses gravitate, and men love just as truly as if these acts were not resolvable into consequences of their several structural characteristics. To make any one of these things supreme is merely to indicate an interest, historical, logical, esthetic, moral, or the like, and so, perhaps, to record a fact of one's personality concerning which the affairs of the universe, as a whole, are sublimely indifferent.

In so far as descriptive characteristics are concerned, then, from

[5] Moore, "Origin and Nature of Life," page 129.

[6] Cf. Lockyer, *loc. cit.*

the point of view of simpler levels, each more complex one presents genuine novelties, but novelties rationally connected with them inasmuch as they are predictable consequences of their laws. They are novelties, however, because no genuine whole is merely the sum of its parts, but is a consequence of the integration of its parts, and such integration is not, in general, expressible entirely in terms of the parts and their relations. Because picking a pocket involves movements of physical masses at varying velocities and therefore could be studied from the point of view of mechanics, and chemical and organic processes that might make it of interest to the chemist or the physiologist, it does not follow that it is not also a real fact for the student of human conduct from a social point of view and that for him it may not constitute an event the significance of which can not be expressed in terms of the sciences previously mentioned. Also the reaction of any integrated group or whole to any other such group is something quite different from the reactions of any of their constituents to each other or from any fact that can be expressed in terms of such reactions.

If, then, one were to give a classification of sciences from a philosophic point of view, it would be necessary to abandon the accidental divisions that have their origin in the "sports" of history. There would be, in the first place, a group of sciences each of which should concern itself with the descriptive laws of entities on each level of integration, and each such science, if ideally developed, should be able to show how its entities could become integrated into those of the next higher level of complexity and furnish the explanation of the laws discoverable on that level. To these would be added a methodological science, or formal logic, which should abstract from concretely discovered relations the types of those relations and by developing these abstractions furnish a useful instrument for the study of the concrete facts from which they are derived. We have such a logic in mathematics, and, under the special form of "pure mathematics," a still further refinement in which abstraction leads us beyond the limitations of physical fact so that the earlier form of mathematics becomes for it an object of study which it can aid in developing, and beside the facts of nature, it also includes such facts of concept relations as are expressible in the algebra of logic. It is hardly necessary to recall the value of such sciences to the physicist and if, as yet, they seem to have done little for social science, it may be either because the fundamental laws of social sciences are not yet sufficiently clearly grasped, or because the complexity of social facts is such that a calculus would be too complex to be convenient, or most probably, because man's place in nature is such that the concrete actuality has for him an importance that makes impracticable the

neglect of detail that everywhere enters into the physicist's generalities. In calculating the trajectory of a shell from a gun, it may not be important to note that every particle of matter in the universe attracts every other particle, if it does, with a force proportionate to the product of the masses and the square of the distance, but it does not follow that a similar simplification is possible in studying human conduct. H. G. Wells says somewhere, that if we could take men by the ten million they would be as alike as atoms, and if we could take atoms individually they would be as different as our uncles and cousins—a suggestion gaining support through recent investigations —but our place in nature makes the one generalization of supreme importance and the other of no value at all.

One further comment should also be added concerning the methodological science. Although its fundamental facts are concrete relations, the results of generalizing them do not imply physical structure corresponding, unless the group of premises are together concretely verifiable in fact. It is perfectly possible to state a mathematical physics that should have no meaning in any world in which man has ever lived. Neglect of this fact has precipitated philosophers into that meaningless dialectic of infinity which has made their cosmologies for the most part valueless budgets of paradoxes. An infinity of concrete entities has never been found by any man and, from the nature of the concept of infinity, we can say *a priori* that it never can be. The extent of space or time is an empirical question that can only be answered, if at all, by observational and not by theoretical methods. In other words, mathematics can only extend our knowledge of nature by elaborating relations already observed and so leading us to new observations and verifications, but can not give any guarantee that its abstractly formed structures shall have factual counterpart when the elements for its syntheses are "freely chosen."

Scientists must get their results as best they can, and in suggesting the above principle for the classification of sciences it is not meant to introduce a revolutionary nomenclature that might possibly be more confusing than helpful. The specializations of physical sciences conform fairly well to the principle enunciated. The study of electricity is primarily concerned with electronic phenomena; the chemist concerns himself with atoms and molecules; and the physicist with integrated groups of molecules. In biology, too, our leading idea is found. Colloidal substances give rise to unicellular organisms, from these multicellular organisms develop, and the concept of the multi-organism seems to be making its way.

In psychology and the social sciences, however, the situation is not satisfactory. There is a place for the study of the laws of the

behavior of organisms and multi-organisms and the explanation of their laws through the laws of their constituent elements. Such a science would do for the animate world what physics does for the inanimate and might be called organic physics as parallel to the inorganic physics now familiar. Behaviorist psychology is the branch of this science that restricts itself to animal, including human, behavior, as plant physiology nearly covers the remaining field of this physics of the animate. The study of the human being as a special object here has for us peculiar importance and immediacy, and the introspectionist psychology tries to introduce consciousness as a new level of entity, but is in constant confusion because the behavior which should be explained through the nature of this entity is constantly getting explained by organic conditions and the entity is forced into the unique position of being constituted by nothing and explaining nothing until it becomes described as a "double aspect" or "epiphenomenon" and neglected as much as possible in all practical work. The difficulty lies fundamentally in ignoring the nature of levels, for these conscious entities are really nothing but integrations of physical states and organic processes.[7] Behavioristic psychology is winning the field not so much through a dialectic refutation of the claims of the introspectionists as through a progressive solution of problems that remained for it insoluble. A grin without the cat may be interesting, but it is much more interesting if the actual cat laughs when tickled.

When we come to the social sciences the situation is also confused. There are integrated groups of men, as well as animals, that react on each other and on their environment as a new order of entities and require the independent statement of their laws as such. But just as the behavior of the atoms within a molecule is not the behavior of free atoms, so the behavior of men in such groups is not the behavior of men outside of those groups. The behavior of the constituent elements is, however, expressible in terms of the laws of those elements, while the behavior of the group is not. No one would attempt to express the properties of a molecule by the same laws that describe the behavior of atoms, yet in social science there are frequent attempts made to express the character of group action in terms of psychological law, or the laws of the action of the individuals out of which the group is constituted, and, I believe, a clear consciousness of the difference involved might clear the way for progress. Our place in nature, however, suggests that the study of individuals as restricted by participation in group entities may be vastly more important than the

[7] Professor Holt in "The Freudian Wish," Ch. II, seems to be the only psychologist to have grasped the fact that new entities can be constituted through the "integration" of simpler ones.

studies of the groups themselves, that is, the materials for the explanation of the group laws may be at least as important as the laws of the group that are explained.

A further division of psychology and social science is also suggested by a certain peculiarity in human behavior. If the rationality of man means that "the development of his nervous system holds his responses in check so that when he does act, he acts as a creature who has had experience and profited by it,"[8] rationality of conduct implies a new study in which ideas as ideals furnish the subject-matter. Human behavior is then studied, not merely for the sake of knowing what it is, but what it ought to be and the so-called normative sciences are born. Thus through perspective we find the study of facts nearest to us leads to significant subdivisions of certain levels that are not paralleled in dealing with physical phenomena that are practically more remote.

If we return for a moment to view in its totality the world as conceived by the scientists, we may note that the cardinal fact everywhere is that entities which have become integrated into groups exhibit, as group-entities, new behavior types not elsewhere found. Limitation to biological science seems here to have led M. Bergson and the neo-vitalists astray, for in biology by itself, the fact of levels would appear like a unique happening that, if really unique, would plausibly suggest such mystical forces as the *élan vital,* while seen in the light of other sciences it suggests merely the cardinal fact of naturalistic science. Also the biological conception of evolution is misleading when generalized, for it indicates a one-directional cosmic process building ever toward higher and more complex forms, while in the light of the other sciences it appears as the highly specialized process resultant upon the formation of certain colloidal states of matter and dependent both for its beginning and its close upon the maintenance of such colloids in a proper environment. Inorganic evolution, however, draws no such simple picture, for it, if we are to believe Lockyer, is always accompanied by a devolution for which there is no parallel in the organic world. Instead of the majestic sweep with which Bergson delights our fancy, a truer picture might represent evolution as the history of the formation and life of a bubble on a seething cauldron to the substance of which it must return as new bubbles take its place, and whether or no there is a definite result of the whole boiling is as impossible to predict as it would be to write a man's whole biography from observations made while walking past him on the street. Nor can we find a solution through dialectic, inner need, or intuition. Mill has taught us the futility of dialectic

[8] Woodbridge, "The Discovery of the Mind," *Columbia University Quarterly,* December, 1912.

to give us knowledge of physical fact; experience shows a world cold to inner needs, and no intuition can enable us to reconstruct a picture from a shred of the canvas. A "*meditatio generationis futuris*," however, can only be fruitful close to the range of scientific prediction, minute as compared with cosmic processes, but sufficient to establish a healthy, active morality, though lacking that sanction of an admiring cosmos so ardently sought in morbid or self-doubting civilizations.

It may be replied, however, as philosophers have often claimed, that the scientific world is not the real world, but to examine this assertion requires a study of the concrete significance of scientific concepts. That study is too difficult to be undertaken in this paper, but will soon follow.

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PERCEPTION AND THINKING

DESCARTES, in the early and somewhat neglected treatise, "Rules for the Direction of the Mind" formulates the problem of knowledge in the following manner. "Now no more useful inquiry can be proposed than that which seeks to determine the nature and the scope of human knowledge . . . , we first of all divide the whole problem relative to it into two parts; for it ought either to relate to us who are capable of knowledge, or to the things themselves which can be known; and these two factors we discuss separately."[1] Again, "In the matter of cognition of facts two things alone have to be considered, ourselves who know and the objects themselves which are to be known."[2] In these two passages we observe the formulation of the most significant contrast in the domain of modern philosophical analysis. It is a contrast, expressible in many ways, between the knower and the known, between consciousness and its object, between the subjective and the objective, between mind and matter, between man and nature. In our traditional language we say that Descartes is a dualist. This dualism, stated here as a distinction between the knower and the known, and elsewhere emphasized as a dualism of mind and matter, is ultimately reduced by Descartes to a dualism of mechanism and teleology. An empirical observation reveals two entirely different kinds of activity, mechan-

[1] "The Philosophical Writings of Descartes," Eng. tr., Haldane and Ross, Vol. I., pages 26–27.

[2] *Ibid.*, page 35.

ical and purposeful.[3] Thus, in distinguishing human beings from automata, Descartes says: "And the second difference is, that although machines can perform certain things as well as or perhaps better than any of us can do, they infallibly fall short in others, by the which means we may discover that they did not act from knowledge, but only from the disposition of their organs. For while reason is a universal instrument which can serve for all contingencies, these organs have need of some special adaptation for every particular action. From this it follows that it is morally impossible that there should be sufficient diversity in any machine to allow it to act in all the events of life in the same way as our reason causes us to act."[4] Descartes segregates the mechanical and calls it matter and the teleological and terms it mind. The enlightening thing, however, is not the contrast between two realms of existence, but the distinction between two kinds of activity. But subsequent analysis emphasized the existence contrast, the subject-object, the mind-matter relation. Teleology could not long maintain itself in the face of Newtonian physics.

If we turn from Descartes to Plato we observe a very different contrast. Consciousness as something outside of nature and in contrast to it is a conception totally foreign to the Greek mind. The distinction between the subjective and the objective was unknown among the Greeks. For Plato the contrast is between two methods of having experience, perception and thinking. On the side of perception we have the particular, the changing, the imperfect, opinion, becoming. On the side of thinking we have the universal, the unchanging, the perfect, knowledge, being. Plato is essentially a moral philosopher, and under the constraint of ethical, mystical, and esthetic interests goes on to correlate perception with appearance and thinking with reality.

In both Plato and Descartes there is a dualism, a dualism which, in response to widely different interests, is subjected to different metaphysical interpretations. But at bottom it seems to me that the empirical distinction of each is an impressive way of describing the same fundamental fact, the fact that perception and thinking, mechanism and teleology, mark a significant, perhaps the most significant of all, metaphysical distinction. It is my purpose in this paper to describe perception and thinking, emphasizing the contrast between them, and to note certain philosophical bearings of the distinction.

By perception I mean what Plato means by it, namely, sense

[3] For this interpretation of Descartes I am indebted to Professor Woodbridge, though I have, by a careful reading of Descartes, satisfied myself of its truth.

[4] Ross and Haldane translation, Vol. I., page 116.

experience. And for Plato perception is non-cognitive. There is a significant passage in the seventh book of the "Republic" which is worth noting. *"I mean to say that objects of sense are of two kinds: some of them do not excite thought because the sense is an adequate judge of them; while in the case of other objects there is a mistrust of the senses which only stimulates inquiry."*[5] As an illustration he takes the case of the three fingers—a little finger, a second finger, and a middle finger. *"Each of them appears a finger, whether seen in the middle or at the extremity, whether white or black, or thick or thin—that makes no difference; a finger is a finger all the same. And in these cases the question, what is a finger? is not presented to the ordinary mind; for the sight never intimates to the soul that a finger is other than a finger."* But as soon as some problem is suggested as, for example, the greatness or smallness of the finger, then *" in these perplexities the soul naturally summons to her aid calculation and intelligence. . . . " "For if absolute unity be perceived by the sight or any other sense, then, as we were saying in the case of the fingers, there will be nothing to attract toward being; but when there is some contradiction always present, and one is the reverse of one and involves the conception of plurality, then thought begins to be aroused within, and the soul perplexed, and wanting to arrive at a decision asks, 'What is absolute unity?' "* Such is Plato's contrast between perception and thinking. It is interesting to read the entire passage with Professor Dewey's analysis of reflective thinking in mind. Sense experience is, for Plato, non-cognitive. Knowledge involves a situation of conflict and the conception of plurality.

Modern philosophy has given a very different view of perception. Owing to the consciousness-object relation, a contrast in terms of which the problem of knowledge is set, perception is viewed as a cognitive act. The mind, according to Descartes, is essentially a thinking thing. Consequently, perception as well as every other act of interaction with an object, must contain an element of consciousness. Perception *must* be cognitive because the mind is so defined that it could not be anything else. But with Plato there is no initial and overawing definition of mind with which an account of sense experience must conform; there are no alliances with a mind-object hypothesis. The approach is more direct, empirical, and natural. May we not return to the simpler standpoint of Plato and describe perception apart from modern epistemological entanglements?

Sense experience is limited, confined, bound down to the given, the present, the immediate. I can have no sense experience of the absent, the distant, the transcendent. To say that perception is concerned with the immediate is to say that it does not admit of dis-

[5] I quote from Jowett's translation.

tinctions. The content perceived is a unit, an undivided whole. To introduce distinctions is to depart from the given. We may express the same thing by saying that perception operates with particulars. Reality in the form of particulars means a world of pure immediacy. In such a world there may be movement, passage from part to part; there may be activity of the impulsive and instinctive kind; there may be feeling, emotion, living; there may be efficiency and alertness; but thinking, intelligence, reflection, consciousness, there is not. Perception, furthermore, is mechanical in its operation. There is adjustment of part to part, spatial and temporal continuity, invariable and uniform activity. There are no inductive "leaps," no "final" causes, no bridging of gaps, no far-glancing sweeps. Perception is activity tied to a particular, or what is the same thing, activity concerned with the immediate.

Thinking is entirely different from perception, as much so as, in the dualism of Descartes, mind is from matter. The central factor in all thinking is suggestion, implication.[6] Every thought, every idea, every act of consciousness, is an inference. Inference is derived from the Latin, *ferre,* to carry; induction from *ducere,* to lead. This element of movement, implied in each word, is present in every inference. Spatially it is a transportation from here to there, temporally it is a transition from now to them. An inference is a sweep, a span, a leap; it involves movement and multiplicity. To think means to analyze, to discriminate, to set one thing over against another, to introduce distinctions. That is to say you can not think about *one* thing, you can not be conscious of unity. Concentration is not thought reduced to unity, but thought maintained by novelty, variety, change, movement.

As perception is concerned with the immediate, so thinking involves transcendence. Implication means detachment from particulars, a freedom to roam beyond the immediate, a peering over the edge of the given, a break in physical continuity. Examine the words which contain the faintest cognitive connotation, as, for example, "vague impression," "hint," "guess," "conjecture," and you will note that they operate in a situation involving detachment from immediacy. And so for the more highly cognitive terms as, "supposition," "assumption," "hypothesis," "theory"; they have meaning only as tentative explanations of situations where the explanation is not present in the same sense in which the situation is present. If the answer were present in the same way in which the question were present there would be no question. Neither would there be thinking, there would be only perception. Transcendence

[6] I do not pretend to say anything here which Mr. Dewey has not said or implied in "How We Think."

means the given radiating significant leadings, the present tingling with a sense of futurity. Over the given rises a mist of meaning, enveloping spheres of influence surround it.

This is more than mechanism. In a mechanical world nothing novel can occur. Contingency and risk are out of the question. Tied to a particular, one is safe; no "accident" can happen. But mechanism is monotonous. Teleology enters to make room for sport. One part of experience plays into the hands of another part, it suggests, it implies, it tells. The crux of teleology is transcendent implication, activity in the light of ends, the operation of "final" causes. For mechanism contingency is eliminated, causality is the ruling category. For teleology, chance and not necessity is supreme. Reality as contingent implies the objective existence and reality of time. Aristotle was right in pointing out that if time were not real there would be no such thing as potentiality, there would be only actuality. It is the objective reality of time which makes teleology possible.

Now the specific differentia of every act of thought is a time quality. We do not mean this in the sense that an act of thought occupies time, but in the sense that an act of thought involves time transcendence. Reflection means acting in the light of consequences. The absent and future are operative *as if* they were present. Time is just as much an objective quality of an object as its color or taste. When I react to its color or taste I perceive it, when I react to its time aspect I think it. And this is what we mean when we say that thinking is teleological and contrast it with perception which we say is mechanical.

If all thinking involves transcendence, a working loose from particulars, how is such activity to be conceived? What gives one the right to go beyond the immediate? what supports me when I make the leap? In short, what is the basis of induction?

In the "Phaedo" Plato makes the doctrine of "recollection" the basis of induction. I see Cebes, and he reminds me of, suggests, implies Simmias. It is because they both "participate" in a "form" that I can get over from the one to the other. "Forms" for Plato are objective and real, and serve as a metaphysical basis for logical theory.

In modern philosophy the problem is solved quite differently. Hume, for example, believing all reality to be in the form of particulars, rightly on this assumption reduces all induction to enumeration. Kant, on the other hand, like Plato has recourse to "forms," but they are subjective, they are mental concepts, categories. The mind is endowed with a conceptual apparatus which enables it to perform inductive leaps of thought. The mind by definition is just the kind of thing which can turn the trick. But such a procedure,

a sort of "vicious" *animism,* is, I think, a consequence of the mind-object relation. Induction must go beyond enumeration, that is, it must transcend particulars. But the object side of the relation is in the form of particulars. Descartes had riveted that conception on philosophy by saying that matter was mechanical. On this assumption the basis of induction can not be objective, at least not an induction which claims to be more than enumeration. Hume had shown that. Kant, therefore, turns to the mind side of the relation and makes the basis of induction subjective. Plato's doctrine of "recollection" may be a figure of speech, but I think it is less metaphorical than Kant's epistemological machinery designed and diagramed after the pattern of Newtonian physics. It is still mechanism in disguise.

The fact of intelligence demonstrates the existence, in some sense, of universals. In a world of particulars neither induction nor thinking, neither consciousness nor reflection could ever arise. No wonder Gorgias ended in nihilism! If perception were the only means of experience, I could not *know* anything, and even if I did know it, I could never *communicate* it. Intelligibility and communication imply more than perception, particulars, and mechanism. Reflection means the operation of more influences than are discoverable as present elements in any given situation. The moment one portion of experience attains a "value," it acquires a superiority in virtue of which it becomes regulating and controlling. Particulars become weighted; they have a representative value; they become signs. They are no longer points, they are spheres of influence. To apply a general concept to a particular situation is to import into that situation a borrowed efficiency.

The fact of intelligence demonstrates the existence in some sense of universals. It implies, too, the fact of teleology and the objective existence of time. May we not say that time is a universal? The cardinal metaphysical problem of the relation of the universal to the particular would then become the problem of the relation of teleology to mechanism, of time as one aspect of reality to its other aspects. Many of the logical difficulties which have arisen in connection with the treatment of time have, I dare say, resulted from the attempt to represent time as a particular. Predicates have been applied to it which are applicable to particulars, but which become meaningless when applied to universals. So, then, to say that thinking involves transcendence, or that it operates with universals, or that it is teleological, or that it is a reaction to the time quality of reality, is to say one and the same thing.

Briefly to summarize, we have on the one side perception, the particular, unity, mechanism, action. On the other we have think-

ing, the universal, multiplicity, teleology, consciousness. This dualism, as I maintain, is absolute. Two crucial cases present themselves for discussion. First, all thinking involves multiplicity; second, all perception is non-cognitive.

To say that all thinking involves multiplicity and movement is to say that *there is no such thing as static awareness.* By *static awareness* I mean "mere presentation," "simple apprehension," "intuition." The view that there exist such simple acts of cognition where the object is unity and the act void of movement goes back doubtless to Descartes. In the "Rules" he enumerates intuition and deduction as the two cognitive operations and distinguishes them on the basis of rest and movement, or what amounts to the same thing, simplicity and complexity. "Hence we distinguish this mental intuition from deduction by the fact that into the conception of the latter there enters a certain movement or succession, into that of the former there does not."[7] Intuition is just static staring. This view was inevitable for Descartes. Having made the whole nature of mind to consist in thinking, then consciousness must be present in every act and form of experience, the simplest as well as the most complex. Now I maintain that what Descartes terms "intuition" simply does not exist. All thinking is what he describes as "deduction."

In support of this contention I point to the fact that, as we are frequently told, a logical "term" is an abstraction, that the simplest act of thought is an inference, a judgment. By saying that unity can not be an object of thought, I do not mean that one can not think about unity. I mean to say that attention, concentrated on one-ness in a single static act of awareness, with no going beyond, with no distinctions nor comparisons, is impossible. So long as I am concerned with just a term, I am tied to a particular, I am engulfed in immediacy, I am just perceiving. There is no awareness there. Wherever there is consciousness, there is movement, vibration, some tremor, however faint. Experience reduced to unity becomes absorption; I am one with the object as the wheels are one with the machine. In the appreciation of music, music does not move me, but as expressed by Santayana, I move with the music. It may be said that I do not draw the distinction between consciousness and self-consciousness. In reply I can only say that such a distinction seems to me to be meaningless. It is as if I were to say that there is a conscious consciousness and an unconscious consciousness.

I point also to the fact that, in the absolutistic analysis, consciousness is denied to the Absolute. No movement from the given to the not-given is possible because, as we are told, the Absolute is the All-Given. It is an eye which can *see* all things at once; that is, it can

[7] Ross and Haldane translation, page 8.

perceive, but it can not be conscious. Distinctions are obliterated, and distinctions are the marks of reflection. Static such an experience is to be sure, but not conscious. The Absolute is in the highest sense an "Individual," it is a unit. The Whole can not go beyond itself, because there is no beyond to go to. So far as consciousness and unity or consciousness and multiplicity are concerned, the logic of the case seems to me to be the same whether it is applied to the Absolute or to human experience. It is not here a question of *what* consciousness is, but *where* it is. It is not to be found where there are no temporal distinctions, where there is no movement. It is not to be found where experience is concerned with unity. Reality in the form of particulars would be a world where consciousness could never appear.

We maintain that all thinking is conversant with multiplicity and movement, and that is to say that there is no such thing as static awareness. Our second crucial point is that perception is non-cognitive, that it has no affiliations with a theory of knowledge. Perception occurs at a level below cognition. In Descartes's language, it is the interaction of matter with matter. The baby in seeing is all eyes. In listening to music, so far as the experience is purely emotional, I am all ears. I do not distinguish myself from the music; I do not *know* that "I" am hearing music. I and the music are one. The immediate does not admit of distinctions, not even the subject-object contrast in its simplest form of the self and the not-self.

Modern psychology teaches that a "pure" sensation is an abstraction. Is not this, it may be asked, sufficient evidence against my view that perception is non-cognitive? In reply I should admit that a pure sensation is an abstraction *for knowledge* or *for consciousness.* And this, I may urge, is only another way of saying that the immediate is never an object of thought, that wherever there is consciousness there is a going beyond the given sense experience. We agree that pure sensations are abstractions for thought; our entire foregoing analysis has been intended to show just that. The recovery of the immediate is impossible for thought, for when the immediate is regained, thought is no longer there; or, if thought is there, it is no longer the immediate, for the entry of thought means the transcendence of the immediate. But from this to conclude that pure sensations do not exist is an unwarranted conclusion. To draw such an inference is the outcome, I think, of the assumption that all experience is in the interest of knowledge, an assumption going back perhaps to the knower-known contrast of Descartes. Since the knower is essentially a thinking being, some element of consciousness is present in every interaction between the knower and the known. Idealism makes consciousness an integral, and not to be disassociated, part of perception. Consciousness and perception are insepar-

ably united because the mind-object relation makes any other view impossible. What I do not understand is how idealism can maintain its thesis and admit the existence of instinctive and impulsive activity. Of course panpsychism is one way out, but that again is to introduce the conception of an unconscious consciousness, a conception which is to me unintelligible. For idealism, in virtue of its initial assumption, consciousness and perception are so closely united that it would require a miracle to separate them. In the light of my contention the two are so different that it would require a miracle to unite them. Sensations may and most frequently do, in adult life perhaps always do, occur along with consciousness, *but the consciousness is no part of the sensation.* "Beauty is its own excuse for being," consciousness does not make it. On the level of sense experience I may perceive beauty; and then too I may be conscious of it, but when I am conscious of it I have departed from the immediately given sense experience: interpretation, the introduction of distinctions, transcendence, have then entered. Perception, we conclude, operates in the interest of action and adjustment and has no affiliations with a theory of knowledge. Its mode of procedure is mechanical, its sphere of operation is the immediate, and neither mechanism nor immediacy admit of interpretation. In a world of pure immediacy, living, but not a life, being, but not thinking, acting, but not personality, are possible.

In the foregoing analysis we have proceeded, not from the standpoint of types of existence, but from the standpoint of kinds of activity. And activity, as we have noted, is of two sorts, mechanical and teleological. In Supplement XXII. of the "Critique of Pure Reason" Kant says: "It is something very remarkable that we can not understand the possibility of anything from the category alone, but must always have an intuition in order to exhibit by it the objective reality of the pure concept of the understanding." As I read the Supplement it seems to imply the recognition on the part of Kant that, although the mind be endowed with its cognitive forms, reality must still be the kind of a thing which fits the forms. It is equivalent to saying that, after all, the forms are objectively real. This would mean, in terms of our own analysis, that intelligence could never arise in a world which was not intelligible. That is to say, mechanism and teleology are not just forms of human experience, they are predicates of reality. Reality is itself *both* mechanical *and* teleological.

Perception and thinking are also types of activity. What is needed is a differentia whereby we may distinguish them. I think we discover this differentia in the presence of a time element in some and not in other reactions. Reactions to the immediate we call perception, reactions to the time quality of reality we call thinking. Or

what is the same thing, when I react to the mechanical aspect of existence I am perceiving, when I react to its teleological aspect I am thinking. And thus we come to contrast perception with thinking, the particular with the universal, the given with the implied, unity with multiplicity, immediacy with transcendence, mechanism with teleology.

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VON BECHTEREW[1] AND UEBERTRAGUNG

THE conventional child having been burnt by the candle flame does not again grasp it, but draws his hand away therefrom. He reacts not to the immediate stimulus, but to an experience which is in him associated with that stimulus. If one's finger has been withdrawn on the prick of a needle, the touch of a blunt object may produce withdrawal. A response primarily elicited by one class of objects becomes elicited by another class of objects associated with the first. In the Russian laboratories, this process has been studied in other varieties of response. The first variety concerns reactions that are not under voluntary control, like the salivary reflex. This is elicited by sour stimuli. If now one combines a certain (secondary) external stimulus often enough with the sour one, after a time the secondary stimulus alone will elicit the salivary reaction. The next variety concerns reflex responses of muscles which are also under voluntary control. Thus if one combines electric stimulation of the sole of the foot with a color stimulus, after a time the color stimulus alone elicits the reaction in the foot primarily associated with the electrical stimulus. The third variety concerns reactions which are not reflex movements, but are conventionalized responses to the primary stimulus. For example, a finger movement is employed as the response to a given light stimulus. If a sound stimulus is combined with the light, the subject will after a time react to the sound alone, "and be sure that the light was seen." If the subject responds to a given sound with finger flexion, and this stimulus is then combined with a light stimulus, the light stimuli will elicit the finger movement after the sound stimuli are stopped. Indeed, it is reported that the light stimuli need not have been given simultaneously with the sound stimuli at all, if only the lights follow the rhythm of the sound stimuli. As von Bechterew generalizes the principle,

[1] Based on the data in the "Objektive Psychologie." Cf. also Watson, "The Place of the Conditioned Reflex in Psychology," *Psych. Rev.*, 23, 1911, pages 89–116.

"If we apply to man or animal two stimuli simultaneously, of which stimuli one elicits a common reflex response, the other not, then after a number of these associated stimuli, the reaction ensues also upon the second stimulus, which in the beginning was ineffectual; such a reaction we call an associative reflex" (*Assoziationsreflex*) (p. 151).

But the process apparently operates in habitual responses as well as in reflex ones.

All the above motor responses can be objectively studied and more or less well registered and measured. A similar process operates in a fourth variety of responses, the emotional reactions, which are not so amenable to objective study, and make a less direct appeal to the laboratory worker. But von Bechterew touches on them at various points in his work. A man who has noticed an evil smell at a street-corner will have a feeling of unpleasantness when he passes there again, although the smell itself is no more. The unpleasantness recurs in situations that are in any way associated with the primary stimulus.

Just so do we have fright or anxiety at many indifferent tidings, not because the tidings themselves affright us, but because they reproduce traces[2] of experiences associated with them, which point to possibly unfavorable consequences for us. Here is especially revealed the associative and reproductive activity of the higher nervous centers, determining the reaction with all the characteristics of a reflex process (p. 282).

These words are like the final strokes that clear away the last separation between two parties tunneling a hill. At this point, the conceptions of affective transference, *Übertragung*, strike hands with those of the conditioned reflex.

When von Bechterew speaks of "inner reflexes, like pain, sorrow, worry, longing," he takes the same view of affective reactions which the psychopathologist has found the most helpful; conceiving them as a class of mental processes associated to ideas and perceptions by the same principles of association that bind ideas and perceptions to the motor discharges of involuntary behavior. Affective transference, by which the affect originally attaching to some special experience, is *loaded* upon another perception or idea somehow associated with that original experience, is "put on the map" of physiological psychology as a phase of the conditioned or associative reaction.

The transference of affective reactions seems to have two points of difference from the other phases of associative response. There is not the same need for intimate association of the primary and secondary experiences; it is more easily established. Again, the secondary, or transferred reaction, as compared with the primary

[2] Prince's *neurograms?* F. L. W.

one, may be more intense in the affective phase than in the other phases of associative response. There may be a "siphoning of affect" from the primary to the secondary experience so that the primary experience becomes indifferent, and nearly all its affect now attaches to the secondary experience. The most pervasive example of this in human development is that the pleasurable affects which are in early life diffused among epidermal, excretory, and other satisfactions, later siphon over to, and become centered upon, other activities to form the sexual trends. The observations of affective transference point to a considerable mobility of these "springs of action" in human life. Life makes a continual series of affective transferences, and their proper control in the development of the individual is a part of training whose import at least equals the entire discipline of artificial information.

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REVIEWS AND ABSTRACTS OF LITERATURE

Genetic Theory of Reality, Being the outcome of Genetic Logic as issuing in the Esthetic Theory of Reality called Pancalism. JAMES MARK BALDWIN. New York and London: G. P. Putnam's Sons. 1915.

In this work the author states the general results of extended studies in genetic and social science and anthropology in recent years. It completes the treatment of Genetic Logic as presented in the three volumes of his work "Thought and Things," giving a critical account of the history of the interpretation of nature and man, both racial and philosophical. He "finds the genetic movement of thought to issue logically neither in Rationalism nor Voluntarism (Pragmatism), nor yet in Positivism, but in a form of interpretation based on direct contemplation, esthetic in character." He argues for a "constructive affectivism" making art the highest vehicle of human apprehension and expression.

It is the author's good rather than evil fortune, probably, that purely extrinsic circumstances led him to put his book into the hands of a new publisher and thus give to it a relatively independent character. Though in every sense a continuation of the thought of the first three volumes, it is at the same time entirely readable for itself. It is marked by a simplicity and lucidity which is possible only to fully ripened thought, and to one who, after using the scaffolding of the technical, knows how to abandon it. Both in thought and in feeling it belongs to the best traditions of the "spiritual" or idealistic tendency in philosophy, taken in its broadest sense.

No review would be adequate which did not at least suggest certain valuable contributions which the book makes to current philosophical discussions more or less independent of the main contention. The exigencies

of space require me to confine myself to the latter, but the reader should at least know that in this book, and still more, in Volume III., where it is more fully developed, is to be found the most adequate recent discussion of value. The genetic development of the value categories is brought into relation with the development of thought in a most enlightening fashion. The treatment of "affective logic," forming an integral part of his theory of value, and of his entire theory of reality, is also worth consideration for its own sake. But of chief importance, perhaps, are the chapters on Religious Interpretation and Religious Reality and Negation. To my mind these constitute the best treatment of the logic of religious experience extant, and in general, a study which no one interested in that subject can afford to neglect. The conclusion that religion does give us a final mode of experience is all important for the author's philosophical position. The actuality of religious objects can, he holds, never be proved, and against the turning of them into values the "unfulfilled categories of reason will always protest." In religion this dualism of actuality and ideality is mitigated, but never radically healed.

As for the main contention of the book—that the genetic movement of thought issues logically in a form of interpretation esthetic in character—the scheme of treatment stands out with simplicity and boldness. A genetic study of interpretation, both in its individual and in its racial aspects, discloses a thoroughgoing parallelism. For both, all interpretation is at the beginning *pre-logical,* in terms of organized social interests. Thought, such as it is, is mythical and animistic and is characterized by an "affective logic," knowing not the control of rational logic or the dualisms which later issue in the opposition of existence and value. The second or logical stage marks a "setting free" and an independent development of the two motives implicit in the pre-logical stage, the motive of truth (and existence) and that of value. Immediacy gives place to mediate thought construction and in this mode all objects have definite predicates of existence and value. The "mediation of truth" leads to the *implication* of reality as absolute and independent. The mediation of value, in terms of means and ends, leads to the *postulate* of absolute value. In this dualism we have the germs of the two great types of philosophical theory, intellectualism and voluntarism, realism and idealism. But the explicit development of these two motives—the hardening of the dualism of "incommensurables,"—brings with it the demand for a "second freeing," from logic and practicality alike. There follows a movement to the hyper-logical or contemplative stage, for which Baldwin finds analogues in both individual and racial experience. It is in this higher immediacy, not in an a-logical reversion to the lower pre-logical stage of mysticism, that reality is found. It does not negate, but includes and reconciles the "implication of reality" and the "postulate of value." This higher immediacy is the esthetic experience.

For this esthetic theory of reality called Pancalism, the author claims no undue novelty. It represents the culmination of a motive constant in philosophy, but one which hitherto has not been able to come into its rights. It is found "more or less incidentally, but none the less really, in

at least three of the great thinkers, Aristotle, Kant, and Schelling." For the thoroughgoing application of the genetic method, however—which, he holds, alone enables this motive to come into its own,—he can with right claim novelty. A certain blood-relationship with "the dialectic"—experience is for Baldwin also an immanent self-integrating movement,—can not indeed be denied, but the method, as this short sketch suggests, is essentially new. The esthetic philosophy in which it issues has, however, failed to carry conviction in the past, and the difficulties which the present statement will have to face are by no means insignificant. In stating them I shall be able, I think, to present what is most important in the position under discussion, and at the same time raise certain questions which must inevitably be suggested by a careful study of the book.

These difficulties are of two kinds. The first concerns the esthetic experience itself. Granting for the moment the legitimacy of the genetic method with its frank abandonment of the logical and ontological points of view, why is it the esthetic rather than the mystical religious, or any other form of immediacy, to which the genetic progression inevitably leads? The second question concerns the genetic method itself and the justification of the abandonment of the logical and ontological points of view.

An initial presumption against the esthetic as the ultimate aspect of reality can not be denied—a fact, by the way, of which the author is himself fully aware. Says a newspaper review of the book, otherwise worthless, "Baldwin's exposition is not very convincing. For a large proportion of mankind the beauty aspect of things is practically non-existent, and as for the few who pay attention to the esthetic qualities of the universe, most are at variance with one another in matters of taste." The superficiality of this remark is obvious, even to one who has not read the book; but surely the fleeting, somewhat aristocratic and parasitic nature of beauty makes the author's task a difficult one. The esthetic experience has little of the massive and instinctive element attaching to the common-sense and religious interpretations of the world. It has none of the atavistic lure that draws others to a pre-logical and mystical union with reality. It is wholly lacking in that wilfulness which gives to idealistic and voluntaristic theories their power. Yet it is to forces such as these that conviction must ultimately appeal, and estheticism makes no such appeals. If in philosophy argument is largely giving reasons for what we believe on other grounds, the task of estheticism is a hard one.

Baldwin reaches his position partly by a negative line of argument, by showing the instability and non-finality of all other types of interpretation, and in this, as is usually the case, he has the most success. But the beautiful is the ultimately real on more positive grounds. Because, tenuous, fleeting, and hard to hold though it may be, it does, while it lasts, mean a reconciliation of those dualisms of the actual and the ideal, of the individual and the universal, which religion never succeeds in uniting, and which philosophy in the form of realism and idealism, intellectualism and voluntarism, can solve only by vainly denying one or the other of the two necessary motives in experience. The esthetic is a unitary and non-relative experience.

Much as I should like to find the arguments for this position convincing (I confess to a private leaning to just such a philosophy as is here developed) I must admit I do not find them so. Space will not permit me to meet them in detail, but I may note two points which seem to me to be fundamental.

The first concerns what I may call the "unstable equilibrium" of the esthetic. It is true, I dare say, that, as Baldwin holds, consummate beauty contains within it the sense of absolute value and absolute reality, the implication of reality, and the postulate of value. But is the antinomy really resolved here, any more than in religion (where, as Baldwin thinks he has shown, it certainly is not)? For myself I think not. The rival tendencies in art which we describe as idealistic and realistic seem to me to be the result of no mere theorizing about art, but rather of an inevitable struggle in the artistic experience itself in which there must be a decision. "The ideals of truth and value remain," says the author (p. 257), "in their fulfilment, different and incommensurable." But do they show any less tendency, each to seek its own fulfilment, in art; and in seeking its own, is either any more tolerant of the other *here* than elsewhere? The dualism between subject and object, between inner and outer controls, is so radical, says the author, that "an essential reconciliation demands a function in which the root of the opposition is removed, and the dualism cured at its source." That function, he is convinced, is the imagination (p. 204). But *is* the imagination such a function? Is it *satisfied* with itself? Does it not always carry in itself the secret sense of its origin in the playful and the semblant, a feeling that it, too, like religious faith, "conceals the opposition of actuality and ideality 'neath a covering of feeling and intuition?"

My second point has to do with the claim for the absolute, non-relative character of the esthetic experience. Here Baldwin makes much of "art for art's sake" and its dictum as to the essential incommensurability of esthetic objects and situations, *qua* esthetic. "We can not bring two works of art or two esthetic situations into any sort of antagonism or comparison *inter se*." "When the esthetic object is fully constituted it knows no other." Now no one familiar with the nature of the esthetic experience can be insensible to the element of truth in this position, but, as it has been exaggerated by the artist, so I think it is misinterpreted by Baldwin. For after all the same may be said of any kind of mono-ideism, even hypnotic, with which indeed the esthetic is in some aspects closely connected. But I ask, is it *here*, or *in the value and truth judgments* to which the esthetic as semblant mode leads up, that reality is found? The relativity of the esthetic appears at another point. I have spoken of the aristocratic character of the esthetic as militating against an esthetic theory of reality. If, as on the author's view, all esthetic experiences are equally absolute, we have an extreme of democracy. He who says that a novel, for instance "The Rosary," is supremely beautiful, and he who says that it is the veriest slush, are both eternally right. Practically absolute the experience is for both, perhaps, but wholly relative to the subject. Actuality and value are not reconciled, and this higher immediacy is as

little communicable and open to criticism as the lower immediacies and mysticisms against which the author inveighs.

It is at this point, I think, that Baldwin's theory of value, admirable as it is in many respects, breaks down. The esthetic is an experience of value, and in so far as it is a value, it presupposes another. With our way of experiencing is bound up the notion that beyond the valued thing is another thing that has another value, more or less. With value is bound up, *a priori* if you will, the relation of "more or less." To which Baldwin would doubtless answer that the value in the esthetic is immediate, and the relation of more and less arises only in mediation and description. Now immediate value is mediated by the relation of means to ends, and this process issues in the postulate of absolute value, but the more or less is not the result of this mediation, it is rather its source, being inherent in the value-experience itself. In so far, then, as the esthetic is a value-experience, it presupposes another. The point involves far too much for argument here, but I think one can hardly escape the conviction that the esthetic is a value to be related to other values, rather than a third something in which value and existence are reconciled.

While on this question of relativity let me say that, significantly enough, the place of time in the esthetic—and indeed in the author's entire theory of reality,—is left obscure. In the concluding paragraph of his third volume of "Genetic Logic" (p. 260) entitled "Interest and Art" we are told that "some sort of real time is undoubtedly a logical presupposition of esthetic immediatism. It is questionable, no doubt, whether esthetic experience as such implicates time, but a more careful examination fails I think to remove all form of duration. . . . It is a difficult problem . . . which no philosophy ought to shirk." In the present volume, however, there is no reference to time—the topic does not even appear in the index.

Such questions as these might be raised by one in sympathy with the author's general position and method, and who perhaps regretted that the case for the esthetic as a reconciliation of reality and value is not fully made out. Far otherwise must the case appear for the "logicists" and ontologists in philosophy. The thought of a "genetic logic" in four volumes must have caused many a logician to wonder at the perversity of the human mind; that it should culminate in a "genetic theory of reality" must fill the ontologists with despair. But Baldwin has the courage of his convictions, even in his titles!

Critics of the earlier volumes (especially Professor Creighton) have insisted that a genetic logic is a contradiction in terms, more specifically that "genetic" as employed in the scientific Darwinian sense, presupposing as it does the dualism of mind and environment, is quite different from, and indeed contradictory to, the logical or teleological point of view which looks upon experience as an immanent self-integrating movement. To all of which Baldwin replies[1] that it is precisely in this latter sense that "genetic" is employed, and that there is no contradiction, for "this very immanental movement establishes the dualism which science employs." The

[1] Vol. III., Appendix B.

broader view, therefore, "issues in and justifies the narrower." Now it is obviously impossible for me to go into this dispute here, but I wish to point out that there is a problem here which Baldwin has not yet satisfactorily solved. There seems to be scarcely any question that development, progression, in this broader sense, presupposes the "ontological" point of view. But Baldwin maintains that he is able "to refute both the logical and metaphysical methods of approaching reality in favor of a psychological or genetic one" (p. 221). It looks very much as though, after all, the broader view were used to justify the narrower psychological, and the latter then employed to cut away the presuppositions of the former. Is is possible that Baldwin has been tempted to the very common philosophical weakness of wanting to keep his cake and eat it too?

"The question, what then is reality is on the readers lips," says the author near the end of the book (p. 303), and the answer is "reality is just all the contents of consciousness so far as organized or capable of organization in esthetic form." In another place we read, "reality in the last analysis is what we mean by reality" (p. 227). "Reality, apart from all meaning for experience is an absurdity, a mere word." He frankly abandons the logical and ontological points of view (pp. 224, 294) and thus cuts the ground from under his critics' feet. But can the genetic method be made to justify this procedure? I think not. The genetic method is itself either a category of existence or of value. If it is the former the logical and ontological categories remain ultimate. If the latter the ontological and logical categories must be reduced to values (meaning is essentially a value concept). One or the other must triumph in philosophy, as in religion and art. If such dominance is not possible must we not remain content with a dualism?

I have said that the book before us continues the best traditions of the idealistic and spiritual tendency in philosophy. But this is true only if that tendency be understood in the broadest sense. In fact one comes nearer to the true inwardness of the book if it be described as an attempt to transcend the realistic-idealistic contrast and opposition. Indeed the author explicity says[2] that his position is "neither realistic nor idealistic."

It is for this reason that I personally welcome the book, and believe that it will especially repay study. For despite superficial signs to the contrary, I think it must be admitted that this attempt is in line with the deeper undercurrent in philosophical thought. Pragmatism is at bottom such an attempt, its very instability, tempted as it is now into realism and now into idealism, proving not necessarily the impossibility of the task, but rather the limitations of pragmatism. Bergson has specifically described his philosophy as such an attempt, and if it too is unsuccessful, it is perhaps because of a misinterpretation of the terms to be transcended. So too the "value philosophies" which, though they have developed in the idealistic tradition, may more fairly be described as an effort to overcome this opposition by the reduction of all the categories of experience to values. It is to this deeper current of philosophical thought that Baldwin's book belongs. If, as I think for the reasons suggested, the results of the

[2] Vol. III., Appendix B, page 271.

genetic method are not wholly successful and the esthetic will not bear the task imposed upon it, it by no means follows that the interpretation of experience which it makes possible, does not constitute a significant step along the path which philosophy is bound to go. The tremendous piece of work of which this volume is the culmination has an assured place in the philosophy of the present.

The book is furnished with an index and a glossary of (ninety) terms with their definitions as employed throughout the four volumes of the Genetic Logic. The definitions are accompanied by illustrations.

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Bericht über den VI. Kongress für experimentelle Psychologie in Göttingen vom 15, bis 18 April, 1914. F. SCHUMANN. Verlag von Johann Ambrosius Barth, Leipzig, 1914. 351 Seiten. M. 11.

The report is in four parts, "Vorträge," "Geschäftliche, Mitteilungen," "Nachtrag," and "Sammelreferate," and covers nearly all the phases of psychology, as the following selected notes signify. A study of interest to students of abnormal psychology in the "Vorträge," entitled "Zur Dynamik des Nervensystems," sets forth unusual findings chiefly from one subject corroborated by results on other reagents. The procedure was to put the subject under light hypnosis, cover his head with opaque cloth, and make noiseless passes over a glass plate resting a few centimeters above the subject's bare forearm and hand. The function of the plate was to exclude perceptible currents of air in making passes or the warmth of the hypnotist's hand. In this manner analgesia, hyperalgesia, and hyperesthesia were induced. Alrutz concludes that aside from possible telepathic action the phenomena must have been due to some kind of influence of the experimenter's nervous system upon the reagent's. Alrutz reports that pointing the finger at the reagent's bare volar forearm produced flexion of the fingers as in response to an electrode, and that pointing the finger at certain tendons produced extension. Ziehen objects, believing the phenomena are due merely to the subject's hypersuggestibility. Alrutz also reports a means of studying the hot sensation.

A. Gelb reports, "Versuche auf dem Gebiet der Zeit- und Raumanschauung," using three lights presented successively at varied time and space intervals so that lights 1 and 3 mark the base and light 2 the apex of an imaginary isosceles triangle. As the distance between the lights varied, so varied the apparent time interval between their occurrences. When the points were illuminated successively and when the time interval between the flashing of point 1 and point 2 was greater or less than that between points 2 and 3, the triangle seemed asymmetrical. Similar displacement was observed in the realms of pressure and sound. Gelb believes the explanation rests with central factors and not in eye-movement and innervation. E. R. Jaensch, in his study, "Ueber Grundfragen der Farbenpsychologie," holds the opinion that contrast phenomena are psy-

chophysical in their nature and inclines toward Hering's color theory.

W. Baade reports a study of isolated sensations and states that although his reagents claim there was a noticeable phase of the perception process where a tune is heard or a color seen without its meaning, he doubts their testimony, believing they have overlooked some heterogeneous ingredient. A. Guttmann, in "Experimentelle Halluzinationen durch Anhalonium Lewini," obtained visual hallucinations (never auditory) accompanied by clear consciousness, but not under its control. Intelligence tests showed no deviation from the normal and an acceleration of mental functioning. Interesting physiological disturbances are described. Jaensch states that the method affords a medium for the study of sleep, dreams, the will, sensation, association, and memory.

In the "Nachtrag" O. Pfungst, in "Versuche und Beobachtungen an jungen Wölfen," to determine whether the psychical characters of the dog are found in the wolf, reports finding the same qualities, proving that domestication has not changed the dog's fundamental psychical character. In the "Sammelreferate" are three extended articles, one of particular value to psychology, by O. Klemm, "Ueber die Lokalization von Schallreizen," consisting of 89 pages with an accompanying bibliography of 246 titles. In this work Klemm brings together the gist of previous studies of the question. A valuable discussion of the physiological factors in localization, and of localization in the blind, in children, and animals is given. Klemm concludes with a survey of the various theories of sound localization. The other studies in the "Sammelreferate" are "Beziehungen der Gemütsbewegungen und Gefühle zu Störungen der Sprache," by H. Gutzmann, and "Ueber neurere Untersuchungen zur Tonlehre," by C. Stumpf.

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JOURNALS AND NEW BOOKS

REVUE DE METAPHYSIQUE ET DE MORALE. January, 1916. *L'Anti-cartésianisme de Malbranche* (pp. 1–26): M. BLONDEL. – The opposition springs from Malbranche's identification of metaphysics and speculative theology, which Descartes tends more and more to separate. *L'Intellectualisme de Malbranche* (pp. 27–36): É. BOUTROUX. – A study of the nature of the intelligence to which Malbranche submits all things even the Divine. *L'Optique de Malbranche* (pp. 37–91): P. DUHEM. – A proof that Malbranche first introduced the conception of light as due to ether vibrations of which the period determines the color, and the amplitude the intensity. *Le Traité de Morale de Malbranche* (pp. 92–126): R. THAMIN. – An exposition of the contents of this work which, the author believes, is far too little known. *Comment Malbranche conçoit la Psychologie* (pp. 127–146): VAN BIÉMA. – His psychology is a sort of compromise between Cartesianism and his theologico-metaphysical ideas. Many observations later used by Berkeley are made by him. *Malbranche et Maine de Biran*

(pp. 147–162): V. DELBOS. – An exposition of the agreements and differences of these two philosophers, suggested by a phrase of Victor Cousin. *Pour une édition de Malbranche* (pp. 163–175): D. ROUSTAN. – The author points out the defects of the few existing editions of Malbranche, none of which is modern, and makes a plea for a new one worthy of Malbranche's important place in the history of thought.

Dewey, John. Democracy and Education. An Introduction to the Philosophy of Education. Text-book Series in Education edited by Paul Monroe. New York: The Macmillan Company. 1916. Pp. xii + 434.

Duckworth, W. L. H. Morphology and Anthropology. Volume I. Cambridge: Cambridge University Press. 1915. Pp. xvi + 304. 10 s. 6 d.

NOTES AND NEWS

THE papers presented at the meeting of the American Philosophical Association held at the University of Pennsylvania on December 28–30, 1915, in honor of Professor Royce, together with a number of papers by other writers who wished to share in this testimony of loyalty and affection have been published by the *Philosophical Review* and make a stout volume of 522 pages. There is prefixed an excellent portrait of Professor Royce taken in 1914 and prefixed to Professor Royce's response at the Association dinner is a portrait representing him at the age of 20, made in 1876. The bibliography of Professor Royce's writings, compiled by Benjamin Rand contains 117 titles of books and articles, and in addition there are 34 titles of critical articles by other writers.

IN view of conditions produced by the war, the Kant-Gesellschaft has been postponed until April 15, 1917, the final date for receiving papers offered in competition for the prizes of 1,500 and 1,000 marks to be awarded for the best and second best discussions of the theme, "Edward von Hartmann's Doctrine of Categories and its Significance for Contemporary Philosophy." The judges will be Professor Bauch, at Jena; Professor Cohn, at Freiburg; Professor Heinrich Maier, at Göttingen. Further information will be supplied on request by Dr. Arthur Liebert, Fasanenstrasse, 48 Berlin.

DR. M. T. MCCLURE has been advanced from the position of assistant professor to that of associate professor of philosophy, at the Tulane University.